

### **REMARKS**

Upon entry of the present amendment, claims 1 and 8-15 are pending in the above-referenced patent application and are under examination. Claim 1 has been amended. Reconsideration of the application is respectfully requested.

Claim 1 has been amended to recite that R<sup>4</sup> is H and that R<sup>8</sup> is either H or C<sub>1-6</sub> alkyl. Support for the amendments to the claim can be found in claim 1 as filed and throughout the specification.

Applicants believe the claim amendments add no new matter to the claims.

#### **I. INDEFINITENESS REJECTION**

Claims 9 and 11 have been rejected under 35 USC § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. Applicants respectfully traverse the rejection in view of the comments below.

The Examiner alleges the scope of the claim depends on what cell the compound is administered to because covalent linkers are cleaved by various hydrolytic or other enzymes in the cell. Applicants respectfully disagree.

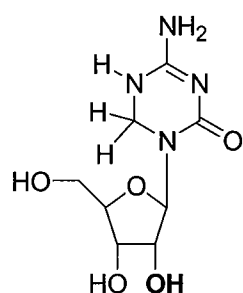
The compounds of the present invention can enter any type of cell or tissue where the covalent linker is cleaved. Preferred cells are virally infected cells. As the virally infected cells can be any cell in any tissue in the body, the covalent linkers can be cleaved in any cell of the body. Thus, claims 9 and 11 are not indefinite. Accordingly, Applicants respectfully request that the Examiner withdraw this aspect of the rejection.

#### **II. FIRST OBVIOUSNESS REJECTION OVER POWELL**

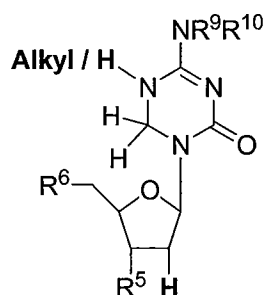
Claim 1 has been rejected under 35 USC § 103(a) as allegedly being obvious over Powell. Applicants respectfully traverse the rejection in view of the comments below.

Applicants submit herewith a declaration under 37 CFR 1.132 by Kevin Harris ("the Harris declaration") providing surprising and unexpected results for the compounds of the instantly amended claims.

Claim 1 has been amended to limit the compounds to 5-aza-2'-*deoxy* cytidine, wherein R<sup>4</sup> is H only, and R<sup>8</sup> is H or C<sub>1-6</sub> alkyl. In contrast, Powell describes only a ribofuranose, 5-aza-2'-*hydroxy* cytidine:

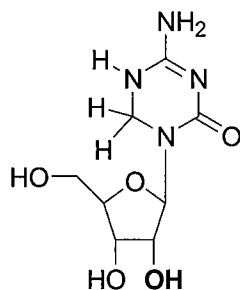


Powell  
**(2'-hydroxy)**  
KP-1332  
(the ribose analog)

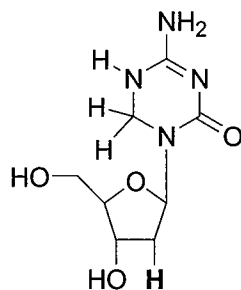


Claim 1  
**(2'-deoxy)**

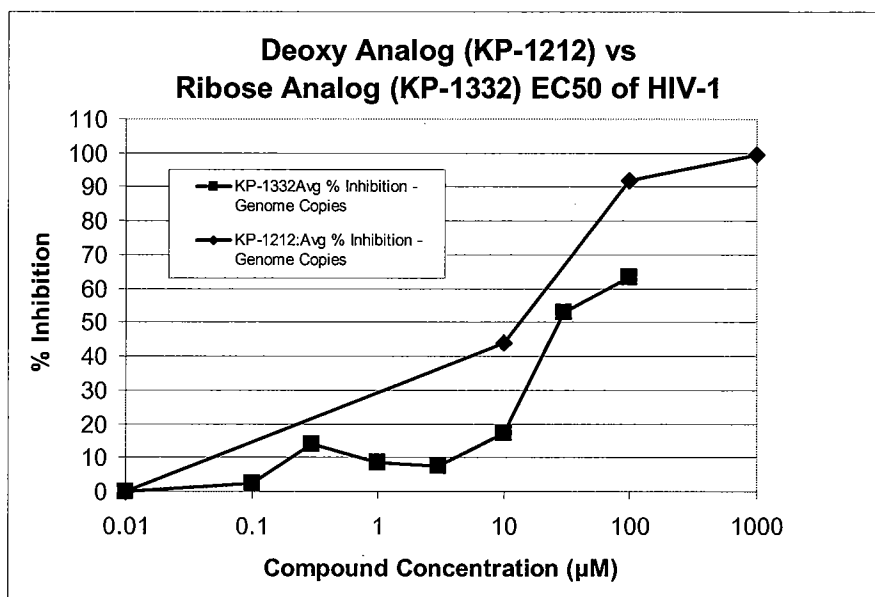
The Harris declaration provides in paragraph 5, a side-by-side comparison of the ribose analog from Powell and the deoxy analog of the present invention.



Powell  
**(2'-hydroxy)**  
KP-1332  
(the ribose analog)



KP-1212  
(the deoxy analog)



The data provided in paragraph 5 shows the deoxy analog having greater inhibition of HIV-1 than the ribose analog at each concentration measured. For example, the ribose analog (KP-1332) of Powell shows approximately 18% inhibition at 10 μM, while the deoxy analog (KP-1212) of the instantly amended claims shows approximately 45% inhibition. At 100 μM, the deoxy analog (KP-1212) of the instantly amended claims shows over 90% inhibition, while the ribose analog of Powell shows approximately 64% inhibition. This data is summarized in the table below.

Concentration (μM)	% Inhibition	
	The Ribose Analog (KP-1332)	The Deoxy Analog (KP-1212)
10	18	45
100	64	92

Based on the data provided in the graph, the effective concentration (EC<sub>50</sub>) was calculated for the ribose analog to be 30 μM. The corresponding EC<sub>50</sub> for the deoxy analog is 12 μM. As the Harris declaration states, the EC<sub>50</sub> for the deoxy analog is “2.5 times better than the ribose analog.”

As the deoxy analog of the instantly amended claims has an  $EC_{50}$  that is 2.5 times better than that of the ribose analog of Powell, despite differing in only the 2' position, the deoxy analog of the instantly amended claims has surprisingly and unexpectedly better activity than the ribose analog of Powell. Thus, the pending claims are not obvious over Powell. Accordingly, Applicants respectfully request that the Examiner withdraw this aspect of the rejection.

### **III. SECOND OBVIOUSNESS REJECTION OVER POWELL & CULLIS**

Claims 12-15 have been rejected under 35 USC § 103(a) as allegedly being obvious over Powell in view of Cullis. Applicants respectfully traverse the rejection in view of the comments below.

Claims 12-15 are drawn to a formulation including a compound of amended claim 1 as one of the formulation components. Claim 1 has been amended to 5-aza-2'-deoxy cytidine compounds. As discussed above and in the accompanying Harris declaration, the 5-aza-2'-*deoxy* cytidine compounds of the present invention exhibit surprising and unexpectedly better activity as compared to the 5-aza-2'-*hydroxy* cytidine compounds of Powell.

Cullis describes conjugates that can be incorporated into stabilized plasma lipid particles. Cullis does not describe 5-aza-2'-deoxy cytidine compounds of the instantly amended claims. In view of the surprising and unexpected results for the 5-aza-2'-*deoxy* cytidine compounds of the instantly amended claims, the combination of Powell and Cullis does not make obvious the claims of the present application. Accordingly, Applicants respectfully request that the Examiner withdraw this aspect of the rejection.

### **IV. THIRD OBVIOUSNESS REJECTION OVER POWELL & McGUIGAN (I)**

Claims 10 and 11 have been rejected under 35 USC § 103(a) as allegedly being obvious over Powell in view of McGuigan (I). Applicants respectfully traverse the rejection in view of the comments below.

Claims 10 and 11 are drawn to phosphate derivatives of the compounds of amended claim 1. Claim 1 has been amended to 5-aza-2'-*deoxy* cytidine compounds. As discussed above and in the accompanying Harris declaration, the 5-aza-2'-*deoxy* cytidine

compounds of the present invention exhibit surprising and unexpectedly better activity as compared to the 5-aza-2'-*hydryoxoy* cytidine compounds of Powell.

McGuigan (I) describes alkyl phosphate derivatives of AZT. McGuigan (I) does not describe 5-aza-2'-*deoxy* cytidine compounds of the instantly amended claims. In view of the surprising and unexpected results for the 5-aza-2'-*deoxy* cytidine compounds of the instantly amended claims, the combination of Powell and McGuigan (I) does not make obvious the claims of the present application. Accordingly, Applicants respectfully request that the Examiner withdraw this aspect of the rejection.

#### **V. FOURTH OBVIOUSNESS REJECTION OVER POWELL & McGUIGAN (II)**

Claims 8 and 9 have been rejected under 35 USC § 103(a) as allegedly being obvious over Powell in view of McGuigan (II). Applicants respectfully traverse the rejection in view of the comments below.

Claims 8 and 9 are drawn to phosphate derivatives of the compounds of amended claim 1. Claim 1 has been amended to 5-aza-2'-*deoxy* cytidine compounds. As discussed above and in the accompanying Harris declaration, the 5-aza-2'-*deoxy* cytidine compounds of the present invention exhibit surprising and unexpectedly better activity as compared to the 5-aza-2'-*hydryoxoy* cytidine compounds of Powell.

McGuigan (II) describes aryl phosphate derivatives of AZT. McGuigan (II) does not describe 5-aza-2'-*deoxy* cytidine compounds of the instantly amended claims. In view of the surprising and unexpected results for the 5-aza-2'-*deoxy* cytidine compounds of the instantly amended claims, the combination of Powell and McGuigan (II) does not make obvious the claims of the present application. Accordingly, Applicants respectfully request that the Examiner withdraw this aspect of the rejection.

Appl. No. 10/670,915  
Amdt. dated September 5, 2008  
Reply to Office Action of March 6, 2008

PATENT

**CONCLUSION**

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,



Alexander R. Trimble  
Reg. No. 52,301

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San Francisco, California 94111-3834  
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Attachments  
ART:art  
61326920 v1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Richard Daifuku et al.

Application No.: 10/670,915

Filed: September 24, 2003

For: 1,3,5-TRIAZINES FOR  
TREATMENT OF VIRAL DISEASES

Customer No.: 20350

Confirmation No. 6525

Examiner: Eric Olson

Technology Center/Art Unit: 1623

DECLARATION OF KEVIN HARRIS

UNDER

37 CFR § 1.132

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Kevin Harris, declare as follows:

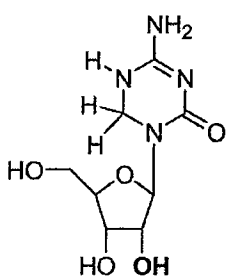
1. I am a Senior Scientist at Koronis Pharmaceuticals. I earned a Ph.D. degree in molecular biology from the State University of New York (SUNY) at Stony Brook. I have worked as a molecular biologist for 14 years, publishing at least 13 peer-reviewed publications and receiving at least 1 United States patent. My *Curriculum Vitae* is attached as Exhibit 1.

2. The invention is directed to novel 5,6-dihydro-5-aza-2'-*deoxy* cytidine compounds.

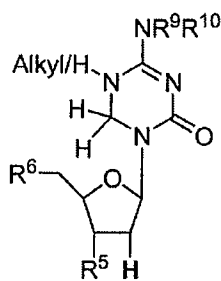
3. I have read and am familiar with the contents of this patent application. In addition, I have read the Office Action mailed March 6, 2008, for the present application. It is my understanding that the pending claims have been rejected because the Examiner believes the claims are obvious over Powell by itself, and in combination with each of Cullis, McGuigan (I)

and McGuigan (II). The Examiner asserts that one of skill in the art, starting from the compounds of Powell, would arrive at the compounds of the present invention. I respectfully disagree with the Examiner.

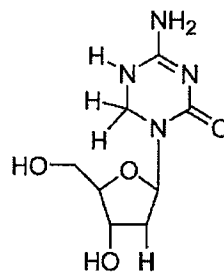
4. This declaration is provided to establish that the 5,6-dihydro-5-aza-2'-*deoxy* cytidine compounds of the present invention possess surprising and unexpected activity as compared to the 5,6-dihydro-5-aza-2'-*hydroxy* cytidine (DHAC) compound of Powell.



Powell  
(2'-hydroxy)  
KP-1332  
(the ribose analog)



Claim 1  
(2'-deoxy)

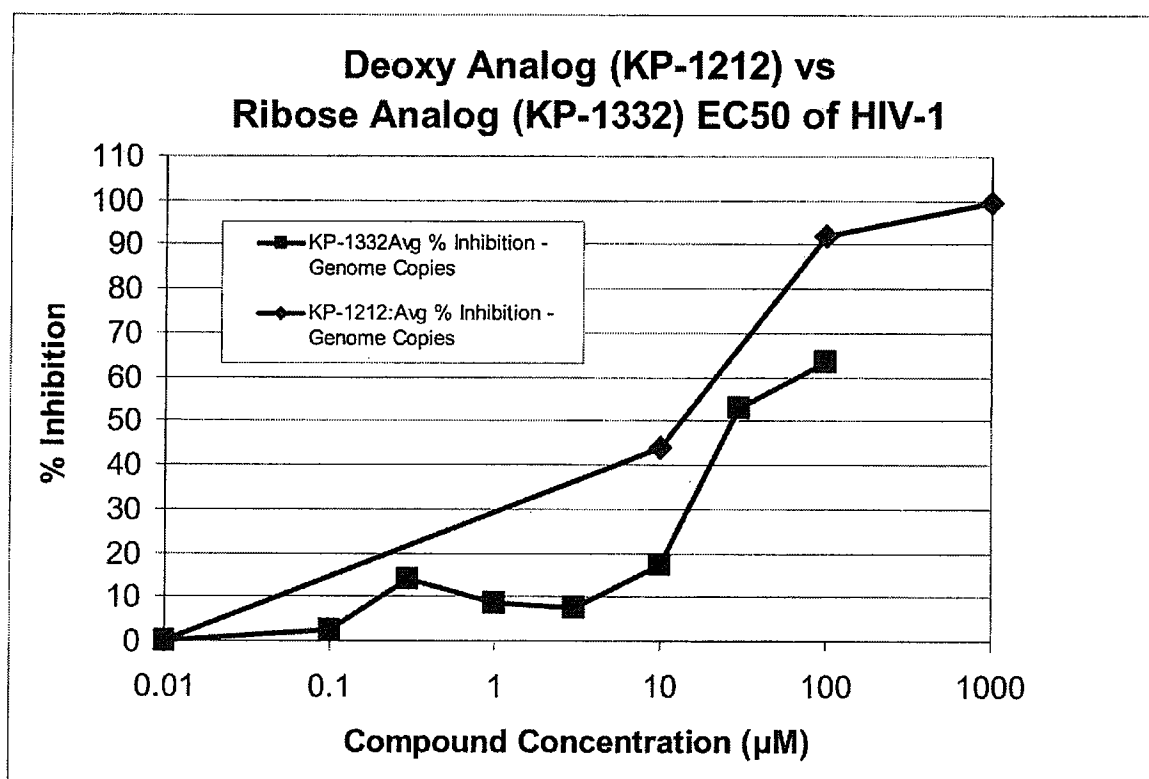


KP-1212  
(the deoxy analog)

5. The cytidine analogs of the present invention are the *deoxy* cytidine analogs, while the cytidine analog of Powell is the *ribose* analog.



Deoxy cytidine analogs and ribose cytidine analogs, while similar in structure, have vastly different properties. The differences in properties are reflected in inhibition profile and effective concentration ( $EC_{50}$ ), to name a few. For example, the effect of deoxy vs. ribose for 5,6-dihydro-5-aza cytidine analogs is exemplified by the following data, showing % inhibition at different concentrations for the ribose analog of Powell (KP-1332) and for the deoxy analog (KP-1212), a compound of claim 1.



The graph for the ribose analog (KP-1332) shows approximately 18% inhibition at 10  $\mu M$ , while the deoxy analog (KP-1212) shows approximately 45% inhibition. At 100  $\mu M$ , the deoxy analog (KP-1212) shows over 90% inhibition, while the ribose analog shows approximately 64% inhibition. This data is summarized in the table below.

Concentration ( $\mu\text{M}$ )	% Inhibition	
	The Ribose Analog (KP-1332)	The Deoxy Analog (KP-1212)
10	18	45
100	64	92

This data demonstrates that the deoxy compounds of the present invention, such as the deoxy analog KP-1212, have better inhibition at a given concentration as compared to the ribose analog KP-1332 of Powell.

Based on the data above, the effective concentration ( $\text{EC}_{50}$ ) was calculated for both the ribose analog and the deoxy analog. For the ribose analog of Powell, the  $\text{EC}_{50}$  is 30  $\mu\text{M}$ . For the deoxy analog of the present invention, the  $\text{EC}_{50}$  is 12  $\mu\text{M}$ , *2.5 times better than the ribose analog*.

Compound	$\text{EC}_{50}$ ( $\mu\text{M}$ )
The Ribose Analog (KP-1332)	30
The Deoxy Analog (KP-1212)	12

This data demonstrates that modification of the cytidine analog from the ribose (2'-hydroxy) to the deoxy has a significant impact on the properties of the compound.

6. The data above was obtained upon completion of the compound dose-response experiment by using 140  $\mu\text{L}$  of cell free supernatant as source material for viral RNA extraction. The viral RNA was extracted using a Qiaamp Viral Extraction Kit from Qiagen. The RNA was extracted according to the procedure prescribed by the manufacturer. The RNA was then reverse transcribed and quantitated using an ABI Real-Time PCR machine. The quantity of viral RNA of the drug-treated cultures were compared to the quantity of viral RNA from the negative drug control culture. A inhibition curve was then derived.

7. In view of the surprising and unexpected improvement in activity for the deoxy analogs of the present invention as compared to the ribose analog of Powell, the compounds of the present invention are not obvious over Powell.

8. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated: 09/02/08

61478029 v1

Kevin J. Harris  
Kevin Harris, Ph.D.

## ■ KEVIN SEAN HARRIS, PH.D.

### PROFESSIONAL EXPERIENCE

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2001 – Present    Koronis Pharmaceuticals

Redmond, WA

*Senior Scientist*

- Initiated a cell culture screen to identify compounds that inhibit BVDV growth in tissue culture.
- Developed a Real-Time PCR Assay to monitor viral genome copies during drug treatment.
- Initiated a cell culture screen to identify compounds that inhibit HIV growth in tissue culture.
- Identified a lead compound and characterized it further focusing on serial passaging experiments, cross-resistance and drug-drug synergy assays.
- Developed and validated a CHO/HGPRT assay to determine if potential lead compounds are genotoxic to mammalian tissues.
- Supervised two scientists assisting in the compound screens and sequencing the HIV proviral genome to examine the effect of the compounds on the viral genome.

1996 - 2001    Abbott Laboratories

Abbott Park, IL

*Senior Molecular Biologist*

- Generated assays reflecting different stages of the Hepatitis C Virus (HCV) life cycle to allow high through-put screening of potential drugs, which may interfere with viral growth.
- Cloned and purified host and viral proteins, which play an important role in HCV replication.
- Initiated structural studies of HCV viral RNA (e.g. RNA footprinting, DEPC and DMS protection assays in addition to providing crystallographers with mg quantities of RNA for tertiary structure determination).
- Investigated the mechanism of action of drug candidates as they pertained to the inhibition of HCV protein expression.
- Supervised two scientists in the development of high throughput screens as well as secondary assays to further investigate compounds identified in primary screens.
- Expressed and purified HCV NS5B polymerase for high throughput screening and structural studies.
- Cloned and purified HIV gp41 for structural studies and high throughput

screening in an effort to find small molecule inhibitors against this target. A patent on this work has recently been submitted.

- Utilized Real-Time PCR to determine HCV genome copy numbers in infected primary hepatocyte cell culture as well as validating potential HCV tissue culture/replication systems.
- Employed fluorescent polarization techniques to develop a high through put screen to identify compounds which inhibit the interaction of a host protein with the 5' NTR of HCV genomic RNA.

1994 - 1996      Fred Hutchinson Cancer Research Center      Seattle, WA  
*Postdoctoral Fellow*

- Generated a collection of over 500 temperature sensitive (ts) nematode lines.
- Initiated a screen for alternative pre-mRNA processing defects.
- Isolated a line that exhibited an alternative pre-mRNA processing defect.

## EDUCATION

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1988 - 1994      Dept. of Microbiology, SUNY Stony Brook      Stony Brook, N.Y.

*Ph.D./Molecular Biology*

- Investigated how a polioviral proteinase influences viral replication. This proteinase (3CD<sup>pro</sup>) is a precursor to the RNA-dependent RNA polymerase (3D<sup>pol</sup>), which is activated by autoprocessing releasing 3D<sup>pol</sup> and 3C<sup>pro</sup>.
- Introduced site-directed mutation at the 3C/3D proteolytic cleavage site to inhibit autoprocessing thus allowing the study of the functions of the 3CD<sup>pro</sup> precursor.
- Over-expressed the precursor in bacteria using the T7 expression system.
- Purified the proteinase to 90% homogeneity using standard chromatography techniques.
- Assayed proteolytic activity on <sup>35</sup>S-Met-labeled viral proteins translated in vitro as well as peptides representing viral cleavage sites.
- Initiated studies utilizing RNA gel shifts, UV cross-linking, filter binding, and RNA footprinting to determine the RNA binding properties of 3CD<sup>pro</sup>.
- Identified and purified viral and host cofactors which enhanced the binding of 3CD<sup>pro</sup> to the 5' terminus of the polioviral RNA genome.

1983 - 1997      Dept. of Microbiology, Wash. State Univ.      Pullman, WA

*B.S./Microbiology Biology*

- Characterized proteins produced from *Bacillus sphaericus*, which are highly toxic to mosquito larvae.
- Raised polyclonal antisera against these proteins for the use in screening expression libraries in an effort to clone the genes encoding the toxins.

## AWARDS RECEIVED

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- Spot award for excellence in antiviral research at Abbott 2/17/00.
- Promoted to Senior Molecular Biologist from Molecular Biologist

01/01/00.

- Irvin Abrahams Award winner given by the Dept. of Microbiology SUNY at Stony Brook for outstanding potential for independent research 9/15/93.
- Recipient of a Stony Brook - Sigma Xi Chapter Award for Excellence in Research on 2/93.
- Recipient of a Stony Brook - Sigma Xi Chapter Travel Award on 4/92.

#### PATENTS AND PUBLICATIONS

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1. Nicklin, M.J.H., Harris, K.S., Pallai, P.V., and E. Wimmer. Poliovirus Proteinase 3C: Large-Scale Expression, Purification, and Specific Cleavage Activity on Natural and Synthetic Substrates *In Vitro*. J. Virol. **62**:4586-4593, 1988.
2. Pallai, P.V., Burkhardt, F., Skoog, M., Schreiner, K., Bax, P., Cohen, K.A., Hansen, G., Palladino, D.E.H., Harris, K.S., Nicklin, M.J.H., and E. Wimmer. Cleavage of Synthetic Peptides by Purified Poliovirus 3C Proteinase. J. Biol. Chem. **264**:9738-9741, 1989.
3. Harris, K.S., Hellen, C.U.T., and E. Wimmer. Proteolytic Processing in the Replication of Picornaviruses. Seminars in Virology **1**:323-333, 1990.
4. Harris, K.S., Reddigari, S.R., Nicklin, M.J.H., Hämmerle, T. and E. Wimmer. Purification and Characterization of Poliovirus Polypeptide 3CD, a Proteinase and Precursor for RNA Polymerase. J. Virol. **66**:7481-7489, 1992.
5. Lama, J., Paul, A.V., Harris, K.S., and E. Wimmer. Properties of Purified Recombinant Poliovirus Protein 3AB as Substrate for Viral Proteinases and as Co-factor for RNA polymerase 3D<sup>pol</sup>. J. Biol. Chem. **269**: 66-70, 1994.
6. Harris, K.S., Xiang, W., Alexander, L., Lane, W.S., Paul, A. and E. Wimmer. Interaction of Poliovirus Polypeptide 3CD<sup>pro</sup> with the 5' and 3' Termini of the Poliovirus Genome: Identification of Viral and Cellular Cofactors Needed for Efficient Binding. J. Biol. Chem. **269**: 27004-27014, 1994.
7. Molla, A., Harris, K.S., Paul, A.V., Shin, S.H., Mugavero, J. and E. Wimmer. Stimulation of Poliovirus Proteinase 3C<sup>pro</sup>-related Proteolysis by the Genome-linked Protein VPg and Its Precursor 3AB. J. Biol. Chem. **269**: 27015-27020, 1994.
8. Paul, A.V., Cao, X., Harris, K.S., Lama, J., and E. Wimmer. Studies with Poliovirus Polymerase 3D<sup>pol</sup>. J. Biol. Chem. **269**: 29173-29181, 1994.
9. Xiang, W., Harris, K.S., Alexander, L., and E. Wimmer. Interaction Between the 5'-Terminal Cloverleaf and 3AB/3CD<sup>pro</sup> of Poliovirus is

Essential for RNA Replication. J. Virol. 69: 3658-3667, 1995.

10. Joachims, M., Harris, K.S., and D. Etchison. Poliovirus Protease 3C Mediates Cleavage of Microtubule-Associated Protein 4. Virology 211: 451-461, 1995.
11. Yalamanchili, P., Harris, K.S., Wimmer, E., and Dasgupta, A. Inhibition of Basal Transcription by Poliovirus: a Virus-Encoded Protease (3C<sup>pro</sup>) Inhibits Formation of TBP-TATA Box Complex In Vitro. J. Virol. 70: 2922-2929, 1996.
12. Morrison, M.L., Harris, K.S., and Roth, M.B. *srg* mutants affect the expression of alternatively spliced SR protein mRNAs in *Caenorhabditis elegans*. Proc Nat'l Acad Sci US A. 1997 Sep 2; 94(18): 9782-9785.
13. Harris, K.S., Brabant, W., Styrchak, S., Gall, A., and Daifuku, R. KP-1212/1461, a nucleoside designed for the treatment of HIV by viral mutagenesis. Antiviral Res. 67 (1): 1-9. 2005.

#### MEETINGS

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1. Hellen, C.U.T., Nicklin, M.J.H., Harris, K.S., Kräußlich, H.-G., and Wimmer, E. Efficiency of proteolytic cleavage by poliovirus proteinase 3C and its 3CD precursor. 7<sup>th</sup> Annual Meeting American Society for Virology. Austin, Texas (1988).
2. Wimmer, E., Bradley, J., Harris, K.S., Hellen, C.U.T., Jang, S.K., Kräußlich, H.-G., Kuhn, R., Lee, C.K., Murray, M., Nicklin, M.J.H., Palmenberg, A., and Yang, X.F. "Fundamental and Applied Aspects of the Molecular Biology of Picornaviruses." Symposium, Moscow, U.S.S.R. (1988).
3. Pallai, P.V., Burkhardt, F., Cohen, K., Hansen, G., Schreiner, K., Harris, K.S., Nicklin, M.J.H., and Wimmer, E. Peptide Processing by Poliovirus Proteinase 3C. 20<sup>th</sup> European Peptide Symposium, Tübingen, West Germany (1988).
4. Kräußlich, H.-G. Hellen, C.U.T., Lee, C.K., Nicklin, M.J.H., Harris, K.S., Mirzayan, C., Harber, J.J., Pallai, P., and Wimmer, E. Proteolytic Processing of Viral Polyproteins by Virus-Encoded Proteinases: Enzyme Structure and Cleavage Specificity of Poliovirus Proteinases. 14<sup>th</sup> Annual Conference on Protein Structure and Function, Lorne, Australia, February (1989).
5. Harris, K.S.<sup>1</sup>, Reddigari, S.R.<sup>2</sup>, Nicklin, M.J.H.<sup>3</sup>, Hämmerle, T.<sup>1</sup> and Wimmer, E.<sup>1</sup> Department of Microbiology, Health Sciences Center, State University of New York at Stony Brook, Stony Brook, N.Y. 11794-8621<sup>1</sup>; Division of Allergy, Rheumatology and Clinical Immunology, Dept. of Medicine, Health Sciences Center, SUNY Stony Brook, Stony Brook, N.Y. 11794-8161<sup>2</sup>; and Institute of Molecular Pathology, 1030 Vienna,

Austria<sup>3</sup>. Purification and Characterization of Poliovirus Polypeptide 3CD, a Proteinase and Precursor for RNA Polymerase. NATO-EEC Course; Regulation of Gene Expression in Animal Viruses, Mallorca, Spain, May 30<sup>th</sup> to June 8<sup>th</sup> 1992.

6. Wimmer, E.<sup>1</sup>, Akhterruzzaman Molla<sup>1</sup>, Christopher Hellen<sup>1</sup>, Aniko Paul<sup>1</sup>, Gary Witherell<sup>1</sup>, Michael Schmid<sup>1</sup>, Tatjana Pestova<sup>1</sup>, Sang Hoon Shin<sup>1</sup>, Louis Alexander<sup>1</sup>, Hui Hua Lu<sup>1</sup>, Kevin Harris<sup>1</sup>, Caroline Mirzayan<sup>1</sup>, Juan Lama<sup>1</sup>, Xui Mei Cao<sup>1</sup>, and Anna Gil<sup>2</sup>, <sup>1</sup>State University of New York at Stony Brook, N.Y. <sup>2</sup>M.I.T., Cambridge, MA. Keystone Symposia on Molecular and Cellular Biology, March 13-31, 1993.
7. Kevin S. Harris, Wenkai Xiang, Louis Alexander, and Eckard Wimmer, Dept. of Microbiology SUNY Stony Brook, Stony Brook, N.Y. 11794-5222. Interaction of Poliovirus Polypeptide 3CD<sup>pro</sup> with the 5' and 3' Termini of the Poliovirus Genome: Identification of Viral and Cellular Cofactors Needed for Efficient Binding. Keystone Symposia on Molecular and Cellular Biology, Feb. 1994.
8. Kevin S. Harris, Michael L. Morrison, and Mark B. Roth, Basic Sciences Division, Fred Hutchinson Cancer Research Center, 1124 Columbia St. Seattle, WA 98104. Cold Spring Harbor Laboratory RNA Processing Meeting, May 17-21, 1995.
9. Kevin S. Harris, Michael L. Morrison, and Mark B. Roth, Basic Sciences Division, Fred Hutchinson Cancer Research Center, 1124 Columbia St. Seattle, WA 98104. *Sng* Gene Products Regulate the Expression of Alternatively Spliced mRNAs in *C. elegans*. First Annual Meeting of the RNA Society, University of Wisconsin-Madison, May 28-June 2, 1996.

#### PROFESSIONAL MEMBERSHIPS

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- Member of the American Society of Virology (ASV)
- Member of the Sigma Xi Society

#### REFERENCES

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- Stefan Loren, Ph.D. Principal Equity Research, Smith Barney Inc.
- Dale Kempf, Ph.D. Project Leader, Antiviral Chemistry, Abbott Laboratories.
- John Reno, Ph.D. COO, Koronis Pharmaceuticals.